DP1100 PRO

7-In-1
Ultrasonic Anemometer with Piezoelectric Rain Gauge, Light & UV, Thermo-hygrometer Sensors

Manual EN

Support/updates/manuals/spare parts:
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1. Introduction

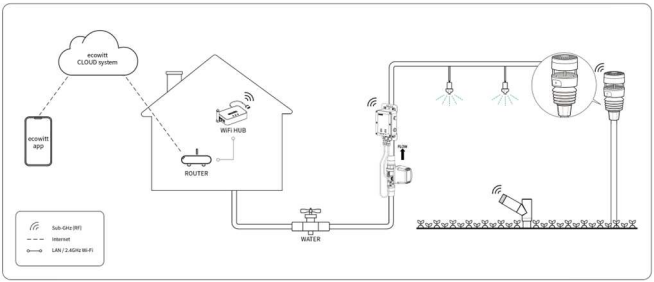

Figure 1 froggit weather system

Thank you for purchasing the DP1100 PRO 7-in-1 Outdoor Sensor. This device is designed to measure multiple weather parameters, including temperature, humidity, wind speed, wind direction, rainfall, UV, and light intensity.

Please note that this sensor cannot be used alone. The data can be transmitted via the froggit Wi-Fi Gateway or displayed on a receiver console (sold separately). Once the Wi-Fi configuration is complete, the data can be viewed on the Ecowitt app or on the receiver console.

To ensure optimal product performance, please read

this manual carefully and keep it for future reference.

General Terms Used in the Manual:

Gateway:

Also known as a hub, it is a display-less console

Receiver:

Refers to the console.

RF: Radio frequency.

It refers to the ISM and SRD SubG (Industrial, Scientific and Medical and Short-Range Devices frequency bands below 1 GHz) for communicating between the console and its sensors.

This frequency is not the same as the 4G modem (LTE) or Wi-Fi working

frequencies (2.4 GHz, 5 GHz).) ISM/SRD bands are kept separate from 4G frequencies by national

regulations to avoid interference.

2. Instructions for Use

2.1 Part List

1 x DP1100 PRO Weather Sensor
1 x User Manual

2.2 Size

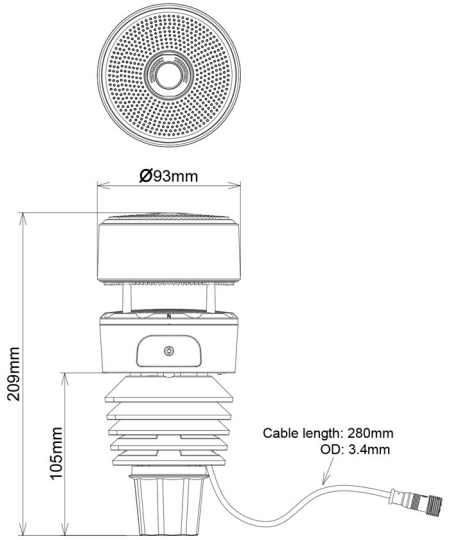

Figure 2

2.3 Over view

Figure 3 Sensor package assembly components

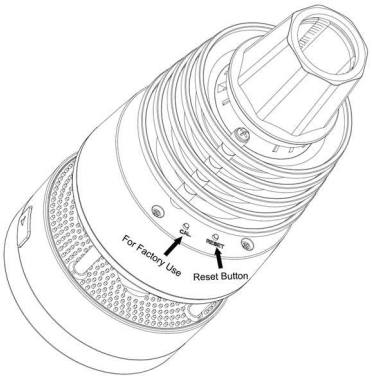

Figure 4 Cal button & Reset button

2.4 Optional accessories(sold separately)

Optional accessories(sold separately)	
12V/1A power extension cord	**This accessory is used for power supply (without batteries) and enables the built-in heater in the DP1100 PRO to be activated at temperatures below 0°C to ensure reliable wind calculation.**
Bird spikes	**The Detachable Metal Bird Spikes Set for Rain Gauge is designed to discourage birds from landing on the sensor.**

Table 1

3. Configuration and Mount

3.1 Preparations

1. Open the package.

2. Preparing the receiver (gateway or console) to pair

3.2 Power up

Battery Usage Warning	
Correct Battery Installation	**Ensure the battery is inserted with the correct polarity. The system requires initial power from this backup battery to start up before the solar panel charges the accumulator and supplies system power.**
Cold Weather Considerations	**In high-altitude areas during winter, sunlight exposure is limited, and the system relies more on the backup battery. We recommend using lithium batteries for better performance in cold climates.**
Avoid Alkaline Batteries for Heated Operation	**If the internal heater is activated during cold and wet conditions, heat will build up inside the device. Alkaline batteries are highly prone to leakage when exposed to high temperatures and should be avoided in such scenarios.**

Battery Type Recommendations	**Alkaline batteries can be used but should be avoided if the heater is activated. Rechargeable NiMH or NiCd batteries should not be used as they are not suitable for this system.**

Table 2

Use a screwdriver to open the battery compartment and insert 2 AA batteries. The LED on the back of the sensor will light up for 3 seconds and then blink every 8.8 seconds, indicating that the sensor is transmitting data properly.

If the LED does not light up for 3 seconds or does not blink as expected, press the "Reset" button to restart the process and ensure that the LED blinks every 8.8

seconds.

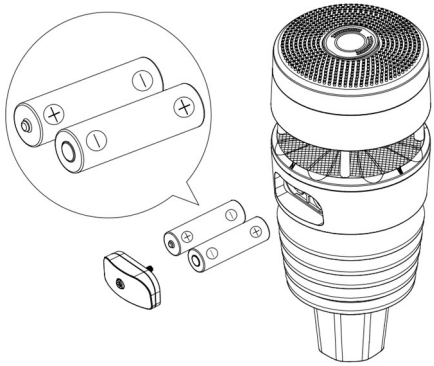

Figure 5 Battery installation diagram

3.3 Pairing with a gateway/console

3.3.1 Compatible Gateways/Consoles for DP1100 PRO

You need to pair this device with the froggit Wi-Fi Gateway or display consoles in order to view data on your Ecowitt app and receive email alerts on our weather server. Compatible models are listed in the

table below.

Console Model Name	Picture	Whether the data could Upload to Internet	Whether the data Could Display on the Gateway/ Console
DP1500 / DP1500 PRO		√	×
DP2000		√	×
DP3000		√	×
HP1000SE PRO (black/silver)		√	√
HP2000		√	√
WH5000		√	√

Table 3

3.3.2 Configure with Gateway/Console

For details in this part, please refer to the manual of the gateway/console.

If Wi-Fi gateway has been in operation, and you have never had a weather sensor setup before, the sensor and Wi-Fi gateway will pick its data automatically.

3.2.3 Replace the old weather sensor

If you want to use a new DP1100 PRO sensor to replace a old weather sensor (already configured on certain channel), please try the following:

1.Open the Sensor ID page on the Ecowitt app, and find your old sensor ID.

2.Power off the old sensor and power on the new sensor.

3.Click Re-register on the Sensor ID page.

Then the new sensor will be learned, and the old sensor will be erased.

3.4 View Online Data on Ecowitt APP

When the Wi-Fi configuration is done, you can view

the live data of your weather sensor on the Ecowitt app.

3.5 Before you mount

Before mounting the outdoor sensor in a permanent location, you should test the sensor wireless connection in a temporary location, and make sure that the sensor has a good station to show the data on the app or console. At the same time, you can adroitly use the various functions and familiarize yourself with the

performance of the device.

3.6 Final mount

3.6.1 Note for Southern Hemisphere Installation:

The solar panel is rounded and orientation-free, so there is no need to adjust it to face "SOUTH" for charging capability.

3.6.2 Before mount

Familiarize yourself with the DP1100 PRO's bottom threaded cover by gently turning it left and right to understand how it screws on and off.

3.6.3 Extension cable(sold separately) introduction

- **The DP1100 PRO has the extension cable to connect the waterproof adapt 12V.**
- **The extension cord can power the entire sensor**
- **If you are not using the external heater, you can store the heater cable inside the pole fixing thread. This helps keep the setup neat and tidy while**

preventing accidental damage.

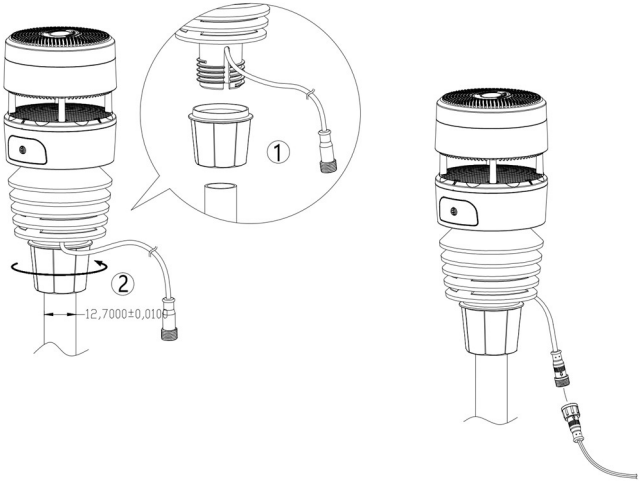

Figure 6

3.6.4 Pole Attachment

- **You can attach a pole (not included) to a permanent structure and then mount the**

sensor onto it (refer to Figure 7 for guidance).

- **The installation hole is designed to fit a pole with a diameter of 2,5cm (pole not included).**

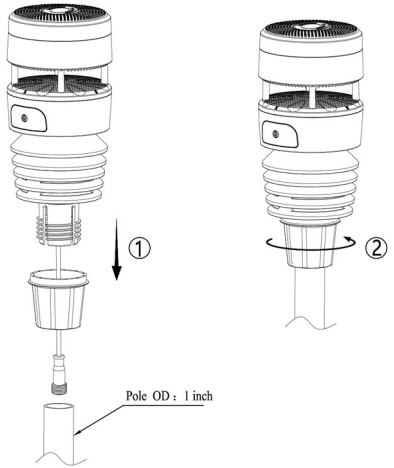

Figure 7 Sensor package mounting diagram

- **Vertical Alignment**

Ensure the mounting tube for the sensor package is installed upright to maintain proper vertical alignment. Adjust the mounting pipe as needed to achieve this.

- **Leveling the Anemometer**

Make sure the anemometer body is mounted level on the pipe. If it is not level, wind direction and speed readings may be inaccurate. Adjust the mounting assembly if necessary.

3.6.5 Correctly Align the DP1100 PRO Sensor

- **If you are unsure about the correct direction, locate the arrow labeled "NORTH" on top of the sensor package's connector tube.**
- **Rotate the sensor until this arrow points due NORTH. You can verify the direction using a compass app on your phone.**
- **Once aligned, securely screw the bottom threaded cover in the NORTH direction, as shown in Figure**

8:

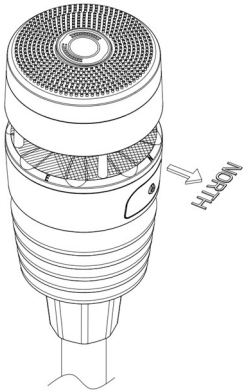

Figure 8

3.6.6 Final Steps

- **Before tightening the bolts, double-check and correct the north orientation as the final**

installation step.

- Tighten the bolts securely, but avoid over-tightening. Ensure the sensor is firmly fixed to withstand strong winds and rain without moving.

4. Features

- **Piezoelectric rain gauge;**
- **Ultrasonic anemometer (start wind speed 0.5m/s);**
- **Outdoor Temperature and Humidity;**
- **Solar light intensity and UV index;**
- **Waterproof IPX5;**
- **Heater and additional power supply;**

5. Specifications

Model	**DP1100 PRO**
Name	**Ultrasonic Anemometer with Piezoelectric Rain Gauge, Light & UV, Thermo-hygrometer Sensors**
Dimensions	**93*93*208mm**
Weight	**498(g)**
Material of Plastic Casing	**ASA+PC、PC**
Temperature Metering Range	**-40°C to 60°C(-40°F to 140°F)**
Temperature Metering Accuracy	**±1°C (± 1.8°F)**
Temperature Metering Resolution	**0.1°C (0.2°F)**
Humidity Metering Range	**1%RH to 99%RH**
Humidity Metering Accuracy	**±5%RH**
Humidity Metering Resolution	**1%RH**

Rainfall Metering range	**0mm to 9999mm**
Rainfall Metering accuracy	**±20%, <5mm/h & >50mm/h;** **±10%, 5mm/h to 50mm/h;**
Rainfall Metering resolution	**0.1mm**
Wind speed Metering range	**0m/s to 40m/s**
Wind speed Metering accuracy	**±1m/s, <10m/s;** **±10%, ≥10m/s**
Wind speed measurement interval	**2s**
GUST wind speed interval	**28 seconds**
Wind speed Metering resolution	**0.1m/s (starting speed > 0.5m/s)**
Wind direction Metering range	**0° to 359°**
Wind direction Metering accuracy	**±15°**

Wind direction Metering resolution	**1°**
Light Metering range	**0Klux to 200Klux**
Light Metering accuracy	**±25%**
Light Metering resolution	**0.1Klux**
UV Metering range	**1 to 15**
UV Metering accuracy	**±2**
UV Metering resolution	**1**
Data reporting Interval	**8.8 seconds**
RF Connection Frequency	**868MHz**
RF Wireless Range (in open areas)	**Ca. 100 meters (open range)**
Operating Temperature Range	**-40°C to 60°C(-40°F to 140°F)**

Protection Rating	**IPX5**
Built-in Solar panel	**7.5V±5%/30mA±10%**
Power Supply	**2*AA batteries(not included) or DC12V/1A Power adapter (not included)**
Battery Life	**3 to 4 months(when no rainfall); 1 to 2 months(when continuous rainfall).**

Table 4

Note:

• The wind speed is detected by every 2s.

• The wind speed reading will be a real-time value (The latest sampling data will be reporting to the receiver).

• The wind gust reading will be the max wind speed in the past 28s.

• When the wind speed is lower than 5m/s,the dispersion of wind direction will increase.

• The primary power source for the sensor is the solar panel. When available solar power (light over recent

period) is insufficient, the batteries will be used.

6. Calibration and Maintenance

6.1 How to calibrate DP1100 PRO

Ensure DP1100 PRO has been paired with the gateway/console. Make sure your mobile device and the gateway/console are connected to the same Wi-Fi network.

6.1.1 A certain parameter Calibration

If you have data from a relatively accurate weather station. You can use the data to do the calibration.
Use Indoor temperature as an illustration in the Figure 10.
1. Open the Ecowitt app. Click "…" on top right corner and choose "Calibration".
2. Calculate the offset of data from accurate weather

station and ecowitt sensor.

3. Fill in the offset got from step3, click Save.

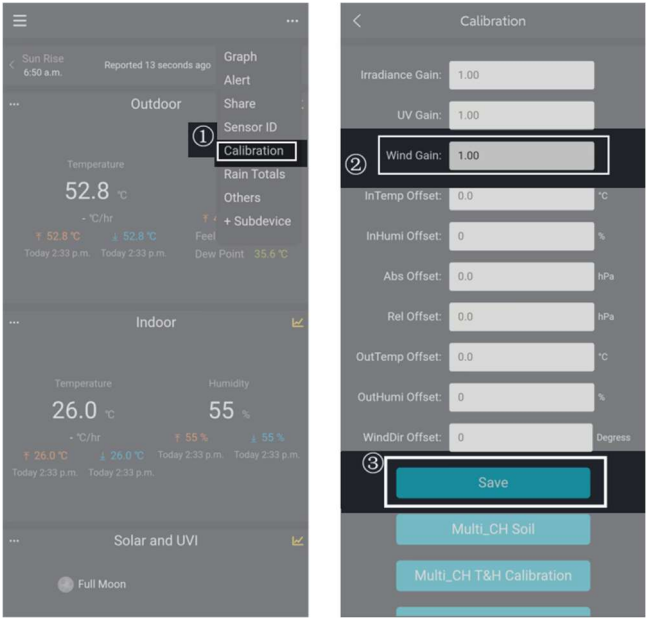

Figure 9

6.1.2 Rain Sensor Calibration

The DP1100 PRO is equipped with a haptic rain sensor, and the system provides a method for users to

calibrate the accuracy of the rain sensor themselves. To perform a proper calibration, please follow these steps:

1. Prepare a Reference Device

A reference device is needed to record rainfall values, and it is also crucial to have the ability to record rain rates. For this purpose, the DP80 (WH40) rain sensor can be used as the reference device.

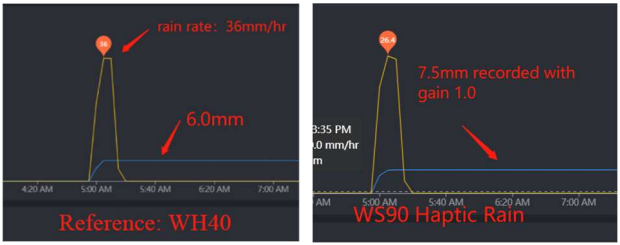

Figure 10 Rainfall values recorded for DP80 (WH40) and DP1100 PRO

2. Understand Rain Gain Parameters

There are five rain gain parameters that can be set: Piezo Rain1 to Rain5. It is recommended to leave Rain1 unchanged unless you can confirm that it consistently produces the same results, after which you

can adjust it.

3. Record and Calculate Rainfall Data

For example: Suppose we set the Rain4 gain to 6/7.5 = 0.8. For easier handling, you can temporarily set Rain2, Rain3, and Rain5 to 0.8 as well.

Only when different rain rates are recorded should you divide the DP1100 rainfall value by 0.8 to obtain a 1.0 rainfall value. Then, recalculate (reference value/DP1100/0.8) and precisely fill in the corresponding rain gain settings.

Figure 11 Set five rain gain parameters

By following these steps, you can more accurately

calibrate the rain sensor of the DP1100 PRO.

6.2 Wind Speed 0 Calibration.

Wind speed needs to be re-zeroed after the firmware upgrade (establish the zero baseline)

Use a fan to test if the wind speed responds at all angles !

1. Perform calibration in a windless room. Cover the top and wind speed sensor area of the DP1100 PRO with a soft cloth.

- **Hold the CAL button for 3 seconds until the LED lights up for 5 seconds and starts flashing.**
- **Wait until the LED turns off, indicating that the wind speed calibration is complete and reset to**

the zero baseline is done.

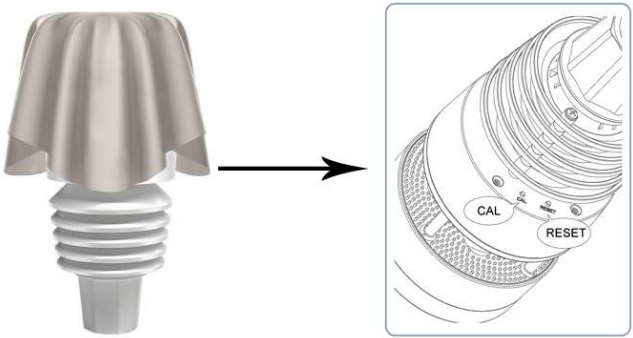

Figure 12

6.3 Managing LED Flashing

For some, the LED flashing is disturbing.

- **To stop the LED from flashing, press and release the CAL button three times shortly.**
- **To restart the LED light function, press the CAL**

button three times again.

7. Warranty

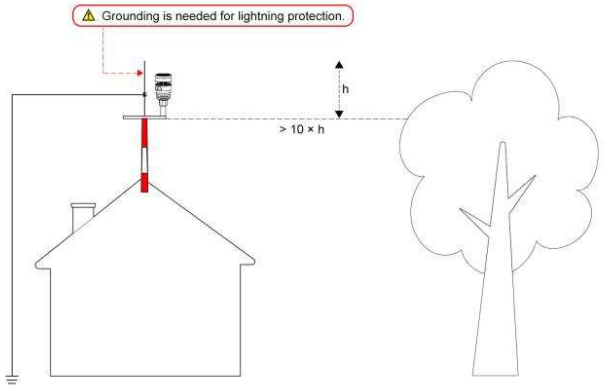

Figure 13

Note: Sensor damage, due to lack of grounding protection against lightning ESD discharge, is not covered by warranty.

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8. Care and Maintenance

When batteries of different brands or types are used together, or new and old batteries are used together, some batteries may be over-discharged due to a difference in voltage or capacity. This can result in venting, leakage, and rupture and may cause personal injury.

• Do not mix Alkaline, Lithium, standard, or rechargeable batteries.

• Always purchase the correct size and grade of battery most suitable for the intended use.

• Always replace the whole set of batteries at one time , taking care not to mix old and new ones, or batteries of different types.

• Clean the battery contacts and also those of the device prior to battery installation.

• Ensure the batteries are installed correctly with regard to polarity (+ and -).

• Remove batteries from products during periods of

non-use. Battery leakage can cause corrosion and damage to this product.

• Remove used batteries promptly.

• For recycling and disposal of batteries, and to protect the environment, please check the internet or your local phone directory for local recycling centers and/or follow local government regulations.

The provided solar panel charges a supper capacitor on this DP1100 PRO. In normal conditions (solar light intensity over 20klux and lasted longer than 4 hours), the supper capacitor peak voltage displayed on the battery tile from your dashboard should be above 3.5v and lower than 5.5v. If it is not overpassing 2.5v, please check the top part of your WS90, and make sure it is free from dust coverage. Use a brush to clean up the

surface for higher solar charging efficiency.

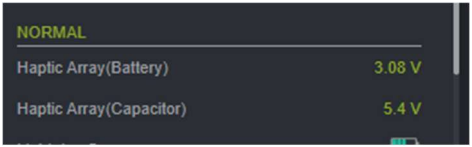

Figure 14

Caution !
This booklet may contain errors or misprints. The information is c ontains is regularly checked and correction are included in subseq uence editions. We disclaim any responsibility for any printing e rror, or their consequences.
The specification of this product may change without prior notice.

General safety instructions

Danger of asphyxiation:

Keep all packaging materials (plastic bags, rubber bands, etc.) away from children. There is a danger of suffocation!

Danger of burns:

Caution! Leaking / leaking battery acid can lead to burns! Avoid contact of battery acid with eyes, mucous membranes and skin. In case of contact, rinse the affected areas immediately with clear water and consult a doctor.

Risk of electric shock:

Children must not be unattended with the device, because the

device contains electronic parts which are operated by means of a power source. The device may only be used as described in the instructions. If not, there is a risk of electric shock.

Danger of fire & explosion:

Use only recommended batteries. Never short-circuit the unit or batteries. Never throw the device or batteries into a fire! Overheating and improper handling may result in short circuits which can cause fires and explosions.

Important:

If there is a defect, contact your dealer immediately. Never disassemble the device! The dealer will contact the service department. Never expose the device to water! Protect the device from vibrations. Only use recommended batteries. Never mix batteries - Always replace empty batteries with a complete set of full power batteries. If the unit is not powered for a longer period of time or is not in use, remove the batteries from the unit.

The manufacturer accepts no liability for incorrectly inserted batteries!

Notes on the return of batteries according to §12 BatterieVO:

Batteries do not belong in the household waste. Please dispose of all batteries as required by law, disposal in domestic waste is expressly prohibited. Batteries and rechargeable batteries can be dispensed free of charge at municipal collection points or in the shops on the spot.

This manual may contain errors and misprints. However, the information in this manual is regularly reviewed and corrections made in the next issue. We accept no liability for technical errors or printing errors, and their consequences.

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WEEE Reg. Nr. 66110125

declaration of conformity

Hereby we declare, HS-Group GmbH & Co.KG, Escherstr. 31, 50733 D-Cologne, that this product is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

The declaration of conformity for this product can be found at:

www.froggit.de or on request.